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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/548,405	09/08/2005	Masatoshi Kuroda	050395-0353	7936
20277 7590 12/17/2009 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096				
EXAMINER				
CHANG, VICTOR S				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
12/17/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/548,405

**Applicant(s)**

KURODA ET AL.

**Examiner**

VICTOR S. CHANG

**Art Unit**

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2, 3, 5 and 6 is/are pending in the application.
- 4a) Of the above claim(s) 5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2, 3 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Introduction***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' amendments and remarks filed 11/13/2009 have been entered. Claims 2, 3 and 6 are active. Claim 1 has been cancelled.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In response, the grounds of rejection have been updated as set forth below. The grounds of rejection not maintained are withdrawn.

### ***Rejections Based on Prior Art***

4. Claim 6 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Peters et al. [US 3321765].

Peters' invention relates to a stepped-index Luneberg lens. The lens part is formed by molding pre-expanded thermoplastic foam particles [col. 3, ll. 57]. Each shell of the lens has uniform dielectric constant throughout [col. 3, ll. 65-67]. To obtain required dielectric constant, the thermoplastic is loaded (filled) with a material such as titanium dioxide (inorganic filler) [col. 4, ll. 40-43]. Examples of useful thermoplastic include polyethylene (polyolefin) [col. 4, ll. 36].

Granules of the thermoplastic are sieved into narrow size ranges [col. 4, ll. 66]. In order to obtain improved uniformity, the particles may be sieved after expansion [col. 5, ll. 23-24]. If there is a discrepancy between the weighed quantity of granules and the quantity required to fill the mould chamber, some of the smaller or larger particles may be removed by sieving and the weight made up with larger or smaller particles [col. 5, ll. 52-56].

For claim 6, Peters is silent about the volume ratio of the polyolefin resin/filler, and the foamed layer has a dielectric constant of 1.5 or more. However, since Peters teaches that a Luneberg lens made of pre-expanded beads of thermoplastic resin with required amount of inorganic filler of a high dielectric constant, and each shell of the lens has uniform dielectric constant throughout, workable ratio of resin/filler ratio and the resulting dielectric constant uniformity of the foamed layers are deemed to be either anticipated by Peters, or obvious routine optimizations to one of ordinary skill in the art, motivated by the desire to obtain required properties for the same end uses (Luneberg lens) as the claimed invention. Regarding the product-by-process limitations, including: 1) uniformly cutting an extrudate into pellets less than  $\frac{1}{4}$  wavelength, adding foaming agent to the pellets, preliminary expansion, and molding expanded beads to have inorganic filler within  $\pm 0.5\%$  designed concentration, and 2) the pre-expanded beads are classified by gravity separation to a range of specified expansion characteristics, since these process limitations have not been shown on the record to produce a patentably distinct article, the formed articles are rendered *prima facie* obvious, and these limitations at the present time have not been given patentable weight.

5. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters et al. [US 3321765].

The teachings of prior art are again relied upon as set forth above.

For claims 2 and 3, the Official notice in the prior Office action “various titanate species, including barium titanate, strontium titanate, etc., are common and well known inorganic fillers having equivalent functionality of high dielectric constants to titanium dioxide” has been taken as admitted prior art. The selection of a known equivalent material based on its suitability for its intended use supported a *prima facie* obviousness determination. See MPEP § 2144.07.

### ***Response to Arguments***

6. Applicants argue at Remarks pages 5-6:

“Peters neither teaches nor suggests the present claimed subject matter with which an electrically uniform dielectric can be formed when the concentration of the inorganic filler having a high dielectric constant is within a range of  $\pm 0.5\%$  with reference to the designed concentration and the size of each pellet formed by mixing of the resin and the filler is  $1/4$  or less of the wavelength of the electromagnetic wave used. In addition, Peters shows that it is essential to form particles of various sizes.”

However, these process limitations have not been shown on the record to produce a patentably distinct article, the formed articles are rendered *prima facie* obvious, and these limitations at the present time have not been given patentable weight. More particularly, absent any evidentiary support, applicants’ arguments are baseless.

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VICTOR S. CHANG whose telephone number is (571)272-1474. The examiner can normally be reached on 6:00 am - 4:00 pm, Tuesday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/  
Primary Examiner, Art Unit 1794